

### Standard Development Roadmap

*This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.*

#### Development Steps Completed:

1. SAR version 1 posted on May 15, 2007.
2. SAR version 1 comment period closed on June 13, 2007.
3. SAR version 2 posted on August 7, 2007.
4. SAR version 2 comment period closed on September 7, 2007.
5. SAR approved by SC on November 1, 2007.
6. First posting of revised standards on October 7, 2008.
7. Second posting of revised standards on April 7, 2009.
8. Third posting of revised standards on August 25, 2009.
9. Fourth posting of revised standard on August 4, 2010.
10. Fifth posting of revised standard on April 26, 2011.
11. Sixth posting of revised standard on December 14, 2011.

Note: The Project 2007-03 SDT is recommending retirement of three requirements in PRC-001-1 because those requirements address data and data requirements, which is covered in TOP-003-2. This redline shows the retired requirements, and a mapping document showing the approved requirements in PRC-001 and the proposed disposition of those requirements is posted on the Project 2007-03 page. The ballot of the conforming changes to PRC-001 is associated with the approval of TOP-003-2 and the implementation plan for this project.

More complete revisions to PRC-001 are addressed in the scope-of Project 2007-06 SDT.

#### Proposed Action Plan and Description of Current Draft:

The SDT began meeting in January 2008 following the approval of the SAR by the SC. The original schedule showed completion of the project in 4Q09. As part of the proposed revisions, TOP-004-2, TOP-005-1, TOP-006-1, TOP-007-0, and TOP-008-0, and PER-001-0 will be retired. The requirements in those standards have been eliminated or moved to other standards within this project. The SDT is also recommending that 3 requirements in PRC-001-1 be retired due to the fact that those requirements deal with data and data requirements will be covered in the proposed TOP-003-2.

#### Future Development Plan:

Anticipated Actions	Anticipated Date
1. Post for successive ballot.	1Q12
2. Post for recirculation ballot.	2Q12
3. Submit to BOT.	3Q12

### **Definitions of Terms Used in Standard**

*This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.*

**There are no new or revised definitions proposed in this standard revision.**

## A. Introduction

1. **Title:** System Protection Coordination

2. **Number:** PRC-001-~~12~~

3. **Purpose:**

To ensure system protection is coordinated among operating entities.

4. **Applicability**

4.1. Balancing Authorities

4.2. Transmission Operators

4.3. Generator Operators

5. **Effective Date:** January 1, 2007 *All requirements become effective the first day of the first calendar quarter twelve months following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, the requirements become effective the first day of the first calendar quarter twelve months following Board of Trustees adoption.*

## B. Requirements

**R1.** Each Transmission Operator, Balancing Authority, and Generator Operator shall be familiar with the purpose and limitations of protection system schemes applied in its area. *[Violation Risk factor: High][Time Horizon: Operations Planning, Same-day Operations, Real-time Operations]*

~~**R2.** Each Generator Operator and Transmission Operator shall notify reliability entities of relay or equipment failures as follows:~~

~~**R2.1.** If a protective relay or equipment failure reduces system reliability, the Generator Operator shall notify its Transmission Operator and Host Balancing Authority. The Generator Operator shall take corrective action as soon as possible.~~

~~**R2.2.** If a protective relay or equipment failure reduces system reliability, the Transmission Operator shall notify its Reliability Coordinator and affected Transmission Operators and Balancing Authorities. The Transmission Operator shall take corrective action as soon as possible.~~

~~**R3.R2.**~~ **R3.R2.** A Generator Operator or Transmission Operator shall coordinate new protective systems and changes as follows.

~~**R3.1.R2.1.**~~ **R3.1.R2.1.** Each Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority. *[Violation Risk Factor: High][Time Horizon: Operations Planning, Same-day Operations, Real-time Operations]*

~~**R3.2.R2.2.**~~ **R3.2.R2.2.** Each Transmission Operator shall coordinate all new protective systems and all protective system changes with neighboring Transmission Operators and Balancing Authorities. *[Violation Risk Factor: High][Time Horizon: Operations Planning, Same-day Operations, Real-time Operations]*

**R4.R3.** Each Transmission Operator shall coordinate protection systems on major transmission lines and interconnections with neighboring Generator Operators, Transmission Operators, and Balancing Authorities. *[Violation Risk Factor: High]*  
*[[Time Horizon: Operations Planning, Same-day Operations, Real-time Operations]]*

~~R5. A Generator Operator or Transmission Operator shall coordinate changes in generation, transmission, load or operating conditions that could require changes in the protection systems of others:~~

~~R5.1. Each Generator Operator shall notify its Transmission Operator in advance of changes in generation or operating conditions that could require changes in the Transmission Operator's protection systems.~~

~~R5.2. Each Transmission Operator shall notify neighboring Transmission Operators in advance of changes in generation, transmission, load, or operating conditions that could require changes in the other Transmission Operators' protection systems.~~

~~R6. Each Transmission Operator and Balancing Authority shall monitor the status of each Special Protection System in their area, and shall notify affected Transmission Operators and Balancing Authorities of each change in status.~~

### C. Measures

**M1.** Each Generator Operator and Transmission Operator shall have and provide upon request evidence that could include but is not limited to, revised fault analysis study, letters of agreement on settings, notifications of changes, or other equivalent evidence that will be used to confirm that there was coordination of new protective systems or changes as noted in Requirements 32, 32.1, and 32.2.

~~M2. Each Transmission Operator and Balancing Authority shall have and provide upon request evidence that could include but is not limited to, documentation, electronic logs, computer printouts, or computer demonstration or other equivalent evidence that will be used to confirm that it monitors the Special Protection Systems in its area. (Requirement 6 Part 1)~~

~~M3. Each Transmission Operator and Balancing Authority shall have and provide upon request evidence that could include but is not limited to, operator logs, phone records, electronic notifications or other equivalent evidence that will be used to confirm that it notified affected Transmission Operator and Balancing Authorities of changes in status of one of its Special Protection Systems. (Requirement 6 Part 2)~~

### D. Compliance

#### 1. Compliance Monitoring Process

##### 1.1. Compliance ~~Monitoring Responsibility~~ **Enforcement Authority**

~~The~~ Regional ~~Reliability Organizations~~ **Entity** shall be responsible for compliance monitoring.

##### 1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

### 1.3. Data Retention

The following evidence retention periods identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full time period since the last audit.

Each Generator Operator and Transmission Operator shall have current, in-force documents available as evidence of compliance for Measure 1.

~~Each Transmission Operator and Balancing Authority shall keep 90 days of historical data (evidence) for Measures 2 and 3.~~

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all requested and submitted subsequent compliance records.

### 1.4. Compliance Monitoring and Assessment Processes

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the

preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

**1.4.1.5. Additional Compliance Information**

None.

**2. ~~Levels of Non-Compliance for Generator Operators: Violation Severity Levels~~**

~~2.1. Level 1: Not applicable.~~

~~2.2. Level 2: Not applicable.~~

~~2.3. Level 3: Not applicable.~~

~~2.4. Level 4: Failed to provide evidence of coordination when installing new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority as specified in R3.1.~~

**3. ~~Levels of Non-Compliance for Transmission Operators:~~**

~~3.1. Level 1: Not applicable.~~

~~3.2. Level 2: Not applicable.~~

~~3.3. Level 3: Not applicable.~~

~~3.4. Level 4: There shall be a separate Level 4 non-compliance, for every one of the following requirements that is in violation:~~

~~3.4.1 Failed to provide evidence of coordination when installing new protective systems and all protective system changes with neighboring Transmission Operators and Balancing Authorities as specified in R3.2.~~

~~3.4.2 Did not monitor the status of each Special Protection System, or did not notify affected Transmission Operators, Balancing Authorities of changes in special protection status as specified in R6.~~

**4. ~~Levels of Non-Compliance for Balancing Authorities:~~**

~~4.1. Level 1: Not applicable.~~

~~4.2. Level 2: Not applicable.~~

~~4.3. Level 3: Not applicable.~~

~~Level 4: Did not monitor the status of each Special Protection System, or did not notify affected Transmission Operators, Balancing Authorities of changes in special protection status as specified in R6.~~

Reqmt. #	VRF	Time Horizon	Lower	Moderate	High	Severe
R1	High	Operations Planning, Same-day Operations, Real-time Operations	N/A	N/A	The responsible entity failed to be familiar with the limitations of protection system schemes applied in its area.	The responsible entity failed to be familiar with the purpose of protection system schemes applied in its area.
<del>R2</del>			<del>N/A</del>	<del>N/A</del>	<del>N/A</del>	<del>The responsible entity failed to notify any reliability entity of relay or equipment failures.</del>
<del>R2.1</del>			<del>N/A</del>	<del>Notification of relay or equipment failure was not made to the Transmission Operator and Host Balancing Authority, but corrective action was taken.</del>	<del>Notification of relay or equipment failure was not made to the Transmission Operator and Host Balancing Authority, but corrective action was not taken.</del>	<del>Notification of relay or equipment failure was not made to the Transmission Operator and Host Balancing Authority, and corrective action was not taken.</del>
<del>R2.2</del>			<del>N/A</del>	<del>Notification of relay or equipment failure was not made to the Reliability Coordinator and affected Transmission Operators and Balancing Authorities, but corrective action was</del>	<del>Notification of relay or equipment failure was not made to the Reliability Coordinator and affected Transmission Operators and Balancing Authorities, but corrective action was not</del>	<del>Notification of relay or equipment failure was not made to the Reliability Coordinator and affected Transmission Operators and Balancing Authorities, and corrective action was not</del>

				<del>taken-</del>	<del>taken-</del>	<del>taken-</del>
<b>R32</b>	N/A	N/A	N/A	N/A	N/A	N/A
<b>R32.1</b>	High	Operations Planning, Same-day Operations, Real-time Operations	The Generator Operator failed to coordinate one new protective system or protective system change with either its Transmission Operator or its Host Balancing Authority or both.	The Generator Operator failed to coordinate two new protective systems or protective system changes with either its Transmission Operator or its Host Balancing Authority, or both.	The Generator Operator failed to coordinate three new protective systems or protective system changes with either its Transmission Operator or its Host Balancing Authority, or both.	The Generator Operator failed to coordinate more than three new protective systems or protective system changes with its Transmission Operator or its Host Balancing Authority, or both.
<b>R32.2</b>	High	Operations Planning, Same-day Operations, Real-time Operations	The Transmission Operator failed to coordinate one new protective system or protective system change with neighboring Transmission Operators or Balancing Authorities or both.	The Transmission Operator failed to coordinate two new protective systems or protective system changes with neighboring Transmission Operators or Balancing Authorities or both.	The Transmission Operator failed to coordinate three new protective systems or protective system changes with neighboring Transmission Operators or Balancing Authorities or both.	The Transmission Operator failed to coordinate more than three new protective systems or protective system changes with neighboring Transmission Operators or Balancing Authorities or both.
<b>R43</b>	High	Operations Planning, Same-day Operations, Real-time Operations	The Transmission Operator failed to coordinate protection systems on major transmission lines and interconnections with one of its neighboring Generator	The Transmission Operator failed to coordinate protection systems on major transmission lines and interconnections with two of its neighboring Generator	The Transmission Operator failed to coordinate protection systems on major transmission lines and interconnections with three of its neighboring Generator	The Transmission Operator failed to coordinate protection systems on major transmission lines and interconnections with three or more of its neighboring



			Operators, Transmission Operators, or Balancing Authorities.	Operators, Transmission Operators, or Balancing Authorities.	Operators, Transmission Operators, or Balancing Authorities.	Generator Operators, Transmission Operators, and Balancing Authorities.
<b>R5</b>			N/A	N/A	The Generator Operator failed to notify its Transmission Operator at all of changes in generation or operating conditions that could require changes in the Transmission Operator's protection systems. (R5.1) OR The Transmission Operator failed to notify neighboring Transmission Operators at all of changes in generation, transmission, load, or operating conditions that could require changes in the other Transmission Operators' protection systems. (R5.2)	The Generator Operator failed to notify its Transmission Operator at all of changes in generation or operating conditions that could require changes in the Transmission Operator's protection systems. (R5.1) AND The Transmission Operator failed to notify neighboring Transmission Operators at all of changes in generation, transmission, load, or operating conditions that could require changes in the other Transmission Operators' protection systems. (R5.2)
<b>R5.1</b>			N/A	N/A	N/A	N/A
<b>R5.2</b>			N/A	N/A	N/A	N/A

<b>R6</b>			<del>N/A</del>	<del>N/A</del>	<del>The responsible entity monitored the status of each Special Protection System in its area but notification of a change in status of a Special Protection System was not made to the affected Transmission Operators and Balancing Authorities.</del>	<del>The responsible entity failed to monitor the status of each Special Protection System in its area, and did not notify affected Transmission Operators and Balancing Authorities of each change in status.</del>
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~~4.4.~~

**E. Regional Differences**

None identified.

**Version History**

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
0	August 25, 2005	Fixed Standard number in Introduction from PRC-001-1 to PRC-001-0	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised
<u>2</u>	<u>TBD</u>	<u>Delete data requirements as they are now handled in TOP-003-2.</u>	<u>Deleted Requirements 2, 5, and 6.</u>